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Orientopius Fischer (Hymenoptera, Braconidae, Opiinae) new for continental China, with description of a new species

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Abstract

The genus *Orientopius* Fischer, 1966 (Hymenoptera: Braconidae: Opiinae) is reported for the first time from continental China and a new species (*O. punctatus* **sp. n.**) is described from Hunan. *Orientiopius tambourinus* Fischer, 1966, is transferred back to the genus *Orientopius*. A key to the Indo-Australian species is added.

Keywords

Braconidae, Opiinae, *Orientopius*, new species, Oriental, China, Hunan, key

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Introduction

The genus *Orientopius* Fischer, 1966 (Braconidae: Opiinae) is a small genus with 15 described species from Palaearctic, Oriental and Australian regions. *Orientopius* is closely related to *Coleopius* Fischer, 1964 (Wharton 1988; van Achterberg et al. 2012); they could be treated as subgenera within the same genus, but the decision is postponed till more is known about the phylogeny of this group. Both have the female metasomal carapace covering the fourth and following tergites or largely so, the second metasomal tergite distinctly (1.3–2.1 times) longer than the third tergite, the third tergite with a sharp lateral crease and the second submarginal cell of the fore wing short (vein 3-SR up to 1.3 times as long as vein 2-SR). *Orientopius* can be separated from *Coleopius* as follows: malar suture complete and distinctly impressed (incomplete and obsolescent in *Coleopius*); medio-posterior depression of mesoscutum present (absent) and second metasomal suture distinctly crenulate, except in Australian species (finely sculptured, without distinct crenulae). Wharton (1988) included the Australian *O. tambourinus* Fischer, 1966, in *Coleopius*, because of similarities of the metasomal carapace. According to the differences listed above it agrees better with *Orientopius* and is, therefore, transferred back to *Orientopius*.

Its biology was unknown until recently van Achterberg et al. (2012) reported a new species of *Orientopius* from two species of the genus *Phytobia* Lioy, 1864 (Agromyzidae) mining near the cambium of trees and shrubs of *Crataegus monogyna* Linnaeus and *Prunus spinosa* Linnaeus in northern France. In general, Opiinae are solitary koinobiont endoparasitoids of larvae of cyclorrhaphous Diptera and may play an important role in the control ofdipterous pests such as fruit-infesting Tephritidae and mining Agromyzidae. Oviposition may take place in the egg of the host (ovo-larval parasitoids); the metasomal carapace of *Orientopius* spp. indicates that the oviposition is in a hard substrate. The parasitoid larva has its final development when the host larva has made its puparium and the adult parasitoid emerges from the host puparium. For the first time a key to the non-Palaearctic species of the genus *Orientopius* is supplied; a key to the Palaearctic species is given by van Achterberg et al. (2012).

Material and methods

The holotype was found in the collection of Hunan Agriculture University at Changsha and was re-prepared. The holotype is deposited in the Institute of Insect Sciences, Zhejiang University (ZJUH) at Hangzhou. For identification of the subfamily Opiinae, see van Achterberg (1990, 1993, and 1997), for identification of the genera, see Fischer (1972), Chen and Weng (2005), Wharton (1988) and van Achterberg (2004), for references to the Opiinae, see Yu et al. (2009) and for the terminology used in this paper, see van Achterberg (1988, 1993). Measurements are taken as indicated by van Achterberg (1988).

Taxonomy

Orientopius Fischer, 1966

http://species-id.net/wiki/Orientopius
Figures 1–24

Orientopius Fischer, 1966: 147.

Type species. *Orientopius curiosigaster* Fischer, 1966 (original designation).

Diagnosis. Clypeus truncate medio-ventrally (Figs 8, 16); labrum exposed (Fig. 8); occipital carina present latero-dorsally and weakly or not protruding in lateral view (Figs 6, 23); head comparatively long in anterior view (Figs 8, 16) and malar space longer than basal width of mandible (Figs 9, 18); malar suture present (Figs 9, 16); inner sides of antennal sockets normal, not protruding (Fig. 20); around base of middle coxa no circular carina; medio-posterior depression of mesoscutum present (Figs 4, 17); notauli absent posteriorly (Figs 4, 17) or as row of punctures; postpectal carina variable, usually partly present medio-ventrally; vein 3-SR of fore wing 0.9–2.0 times as long as vein 2-SR (Figs 2, 13); metasoma with carapace (Fig. 1), but less developed in males (Figs 23, 24); second tergite sculptured and distinctly longer than third tergite (Figs 5, 23, 24); dorsal carinae of first tergite variable, separated basally (Fig. 24) or medially united in a median carina (Fig. 5); second metasomal suture distinct (Figs 4, 24); third tergite of female with a sharp lateral crease.

Notes. Fischer (1966, 1972, 1987) lists as a character of the genus that (translated) the second and third tergites are united and have no transverse furrow (= second metasomal suture). This is a misinterpretation of the carapace of the male holotype (Figs 23, 24); the holotype has a long second tergite, a distinctly crenulate second metasomal suture and a comparatively short third tergite. The fourth tergite is rather exposed and smooth, what is typical for males; females have the fourth tergite largely retracted (Figs 5, 10).

Orientopius punctatus van Achterberg & Li, sp. n.

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http://species-id.net/wiki/Orientopius_punctatus
Figures 1–12

Type material. Holotype (ZJUH), ♀, "[S. China: Hunan], Nan Mt., meadow, 18.VII.1988, Fu-Xing Li".

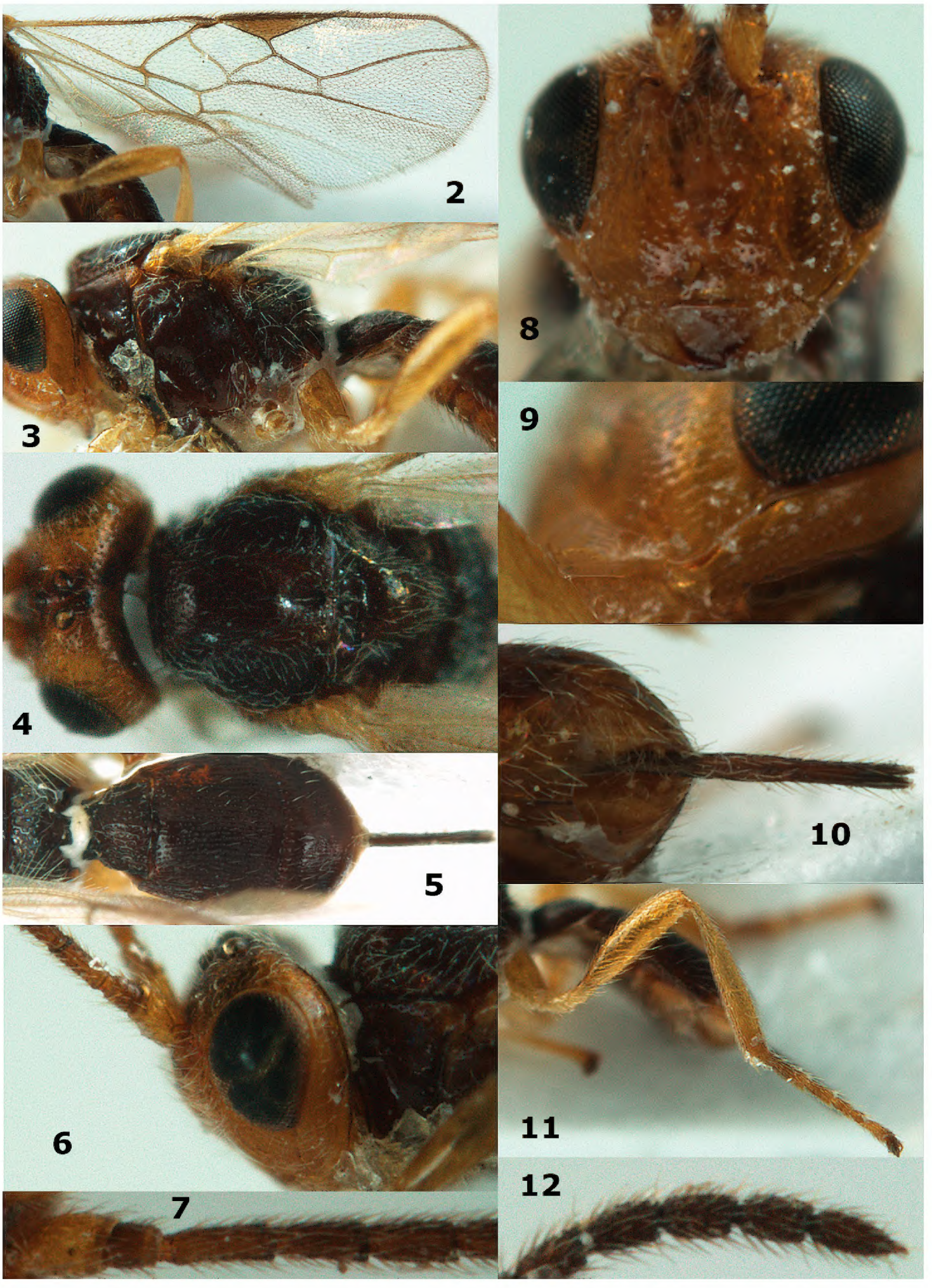
Diagnosis. Vein SR1 ends near apex of fore wing (Fig. 13); vertex moderately densely punctate, with interspaces mostly wider than diameter of punctures or wider (Fig. 4); antenna dark brown, except basally; malar space about 1.5 times as long as basal width of mandible and head less elongate in anterior view (Fig. 8); pterostigma dark brown; mesosoma dark brown or blackish (Figs 1, 3, 4); transverse carina of pro-

Figure 1. *Orientopius punctatus* sp. n., female, holotype. Habitus lateral.

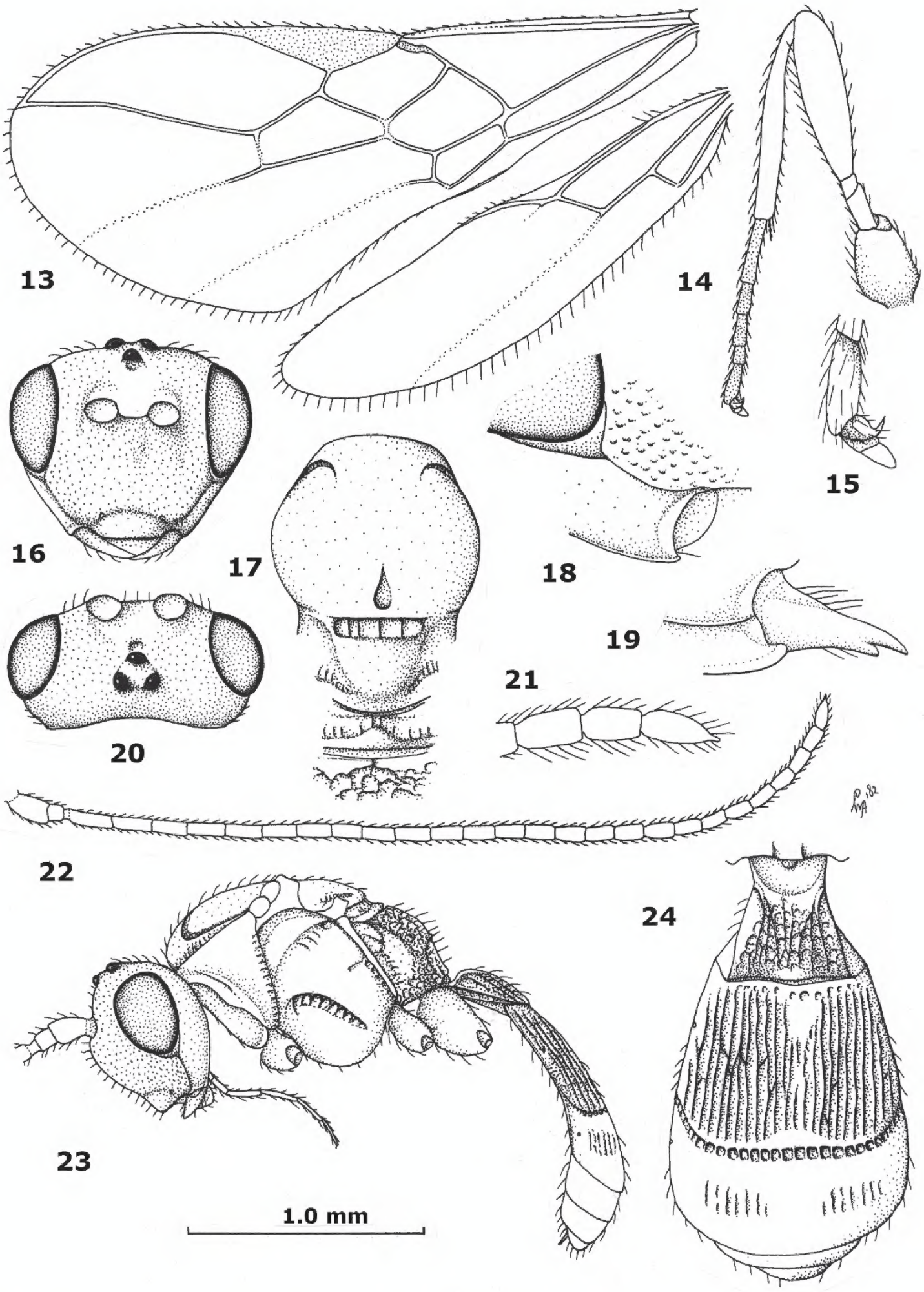
podeum distinctly in front of middle of propodeum; hind basitarsus about 3.7 times as long as wide (Fig. 11); dorsal carina of first tergite united subbasally; second tergite about twice as long as third tergite and with rows of punctures between striae (Fig. 5); third tergite 0.3 times longer than its basal width; third metasomal tergite semi-circular and partly distinctly punctate (Fig. 5); fourth tergite of female smooth and retracted (Fig. 1); setose part of ovipositor sheath 0.6 times as long as combined first-third metasomal tergites, 0.2 times as long as fore wing and 0.8 times as long as hind tibia (Fig. 1).

Description. Holotype, ♀, length of body 2.3 mm, of fore wing 2.5 mm.

Head. Antenna with 25 segments and 1.1 times as long as fore wing; third segment 1.1 times as long as fourth segment, length of third, fourth and penultimate segments 2.7, 2.5 and 1.8 times their width, respectively (Figs 7, 12); length of maxillary palp unknown, palp submerged in glue; occipital carina widely removed from hypostomal carina and dorsally absent; hypostomal carina narrow; length of eye in dorsal view 3.3 times temple; temples directly narrowed (Fig. 4) and largely smooth; vertex finely punctate, with interspaces mostly wider than punctures; frons slightly depressed behind antennal sockets and with some curved rugulae, remainder slightly convex and setose, largely finely punctate, with interspaces wider than punctures; face medio-dorsally elevated, coarsely punctate, with interspaces slightly wider than punctures and some striae latero-dorsally; width of clypeus 2.8 times its maximum height and 0.6 times width of face; clypeus flat, smooth and its ventral margin rather thin and medially straight; hypoclypeal depression wide and deep (Fig. 8); labrum flat (including ventral rim); malar suture complete; with punctures between malar suture and clypeus; length of malar space 1.5 times basal width of mandible (Fig. 9); mandible strongly constricted and twisted apically, without distinct ventral carina, second tooth medium-sized.



Figures 2–12. *Orientopius punctatus* sp. n., female, holotype. **2** wings **3** mesosoma lateral **4** mesosoma dorsal **5** metasoma dorsal **6** head lateral **7** base of antenna **8** head anterior **9** malar space **10** ovipositor sheath ventral **11** hind leg **12** apex of antenna.



Figures 13–24. *Orientopius curiosigaster* Fischer, male, holotype. **13** wings **14** hind leg **15** outer hind claw **16** head anterior **17** mesosoma dorsal **18** malar space **19** mandible and ventral part of occipital carina **20** head dorsal **21** apex of antenna **22** antenna **23** habitus lateral **24** metasoma dorsal. **13, 14, 22, 23**: scale-line (= 1 x); **15**: 5 ×; **16, 17, 20, 24**: 1.3 ×; **18, 19, 21**: 2.5 ×.

Mesosoma. Length of mesosoma 1.3 times its height; dorsal pronope absent, pronotum short and nearly vertical anteriorly; pronotal sides smooth but oblique groove anteriorly and posterior groove coarsely crenulate (Fig. 3); epicnemial area with few crenulae dorsally; precoxal sulcus distinctly impressed, but posterior 0.4 absent, and coarsely crenulate (Fig. 3); pleural sulcus distinctly crenulate; mesosternal sulcus and postpectal carina not visible because of glue; metapleuron coarsely reticulate ventrally and dorsally largely smooth (except some punctures); notauli impressed and with few crenulae anteriorly, and largely absent on disk; mesoscutum flattened, with large elliptical medio-posterior depression, setose and punctulate; scutellar sulcus wide and with 3 coarse crenulae (Fig. 4); scutellum rather flat and sparsely punctulate; metanotum with weak median carina; propodeum posteriorly largely smooth, with coarse curved transverse carina in front of middle and anteriorly rugose and with rather short median carina (Fig. 5).

Wings. Fore wing (Fig. 2): pterostigma triangular; 1-R1 ending close to wing apex and 1.3 times as long as pterostigma; r:3-SR:SR1 = 5:16:50; 2-SR:3-SR:r-m = 16:16:5; r slender; 1-M and SR1 slightly curved; m-cu just postfurcal; cu-a slightly postfurcal and 1-CU1 hardly widened; first subdiscal cell closed, CU1b medium-sized and shorter than 3-CU1; M+CU1 sclerotized. Hind wing: M+CU:1-M:1r-m = 25:18:12; cu-a straight; m-cu absent.

Legs. Length of femur, tibia and basitarsus of hind leg 3.8, 7.0 and 3.7 times as long as wide, respectively (Fig. 11); hind femur with long setae and tibia densely rather short setose; third and fourth segments of fore tarsus distinctly longer than wide and about as long as wide, respectively.

Metasoma. Length of first tergite 0.8 times its apical width, its surface smooth in front of united dorsal carinae and coarsely punctate-reticulate behind carinae, convex and no median carina posteriorly (Fig. 5); second suture coarsely crenulate, nearly straight, slightly widened medially and distinctly impressed; second tergite with row of punctures between longitudinal striae; median length of second tergite 2.1 times median length of third tergite; third tergite mainly with rows of punctures, but medially and posteriorly smooth; following tergites smooth and largely retracted below carapace; length of setose part of ovipositor sheath 0.22 times fore wing, 0.6 times first-third tergites combined and 0.8 times longer than hind tibia; hypopygium far retracted, truncate apically and about 0.2 times as long as metasomal carapace.

Colour. Dark brown, including pterostigma, veins and antenna (but scapus yellow); head and mandible yellow, but head medio-dorsally and posteriorly infuscate; ovipositor sheath blackish; wing membrane subhyaline.

Distribution. Oriental China (Hunan).

Biology. Unknown.

Etymology. Name "punctatus", because of the punctate second metasomal tergite.

Notes. The species can be separated from the other non-Palaearctic species as follows:

1 Vein SR1 of fore wing about 1.3 times as long as vein 3-SR; third metasomal tergite nearly as long as second tergite; fourth antennal segment of ♀ about

twice as long as wide; [ovipositor sheath about as long as first tergite]; East Malaysia..... ***O. malaysiae*** **Fischer, 1996**

– Vein SR1 of fore wing 2.5-3.3 times as long as vein 3-SR; third metasomal tergite distinctly shorter than second tergite; fourth antennal segment of ♀ about 3 times as long as wide (♀ unknown of *O. curiosigaster*)..... **2**

2 Wing membrane brown; third tergite more or less convex in lateral view; second metasomal suture smooth; metasoma yellowish-brown; [Australian region] **3**

– Wing membrane subhyaline; third tergite flat in lateral view; second metasomal suture crenulate (but narrowly so in *O. priminans* and *O. marianus*); metasoma black or dark brown **4**

3 Second metasomal tergite with longitudinal rows of punctures and third tergite largely smooth (except basal punctures); ovipositor sheath in lateral view about 0.8 times as long as second and third tergites combined and in dorsal view about 0.3 times as long as metasoma; Australia (Queensland) ..... ***O. tambourinus*** **Fischer, 1966**

– Second tergite with longitudinal striae and third tergite entirely punctulate; ovipositor sheath in lateral view about as long as second and third tergites combined and in dorsal view about 0.5 times as long as metasoma; Papua New Guinea ..... ***O. bishopi*** **Fischer, 1996**

4 Notauli completely impressed and smooth; vein 1r-m of hind wing about as long as vein cu-a; medio-posterior depression of mesoscutum minute; [malar space about as long as basal width of mandible and without malar suture]; East Malaysia ..... ***O. priminans*** **Fischer, 1996**

– Notauli largely absent (except anteriorly); vein 1r-m of hind wing 1.5–2.0 times as long as vein cu-a; medio-posterior depression of mesoscutum large droplet-shaped or elliptical, but small in *O. marianus* **5**

5 Vein 3-SR of fore wing about as long as vein 2-SR; malar space about 1.7 times as long as basal width of mandible; mesoscutum punctulate; apical segments of antenna of ♀ (but ♀ unknown of *O. curiosigaster*) blackish or dark brown as other segments; [medio-posterior depression of mesoscutum large droplet-shaped; crenulate second metasomal suture moderately wide and parallel-sided medially] **6**

– Vein 3-SR of fore wing 1.6–2.0 times as long as vein 2-SR; malar space about as long as basal width of mandible; mesoscutum smooth; apical segments of antenna of ♀ white or yellow..... **7**

6 Second metasomal tergite without rows of punctures between longitudinal striae and third tergite only with some superficial striae (Fig. 24); mesosoma brownish-yellow; dorsal carina of first tergite remain separated subbasally (Fig. 24); malar space about 1.8 times as long as basal width of mandible and head more elongate in anterior view (Fig. 16); hind basitarsus about 5.0 times as long as wide (Fig. 14); transverse carina of propodeum near middle

of propodeum; second tergite about 1.8 times as long as third tergite medially; Philippines ..... ***O. curiosigaster*** **Fischer, 1966**

– Second tergite with rows of punctures between longitudinal striae and third tergite partly punctate (Fig. 5); mesosoma dark brown or blackish (Figs 1, 3, 4); dorsal carina of first tergite united subbasally; malar space about 1.5 times as long as basal width of mandible and head less elongate in anterior view (Fig. 8); hind basitarsus about 3.7 times as long as wide (Fig. 11); transverse carina of propodeum distinctly in front of middle of propodeum; second tergite about 2.1 times as long as third tergite medially; Oriental China (Hunan).... ***O. punctatus*** **sp. n.**

7 Crenulate second metasomal suture strongly widened medially; medio-posterior depression of mesoscutum large droplet-shaped; vein 3-SR of fore wing about 1.6 times as long as vein 2-SR; ovipositor sheath in lateral view about as long as first metasomal tergite and in dorsal view hardly protruding; 5 apical segments of antenna of ♀ yellow; China (Taiwan)..... ***O. formosanus*** **Fischer, 1966**

– Crenulate second metasomal suture narrow and parallel-sided medially; medio-posterior depression of mesoscutum small elliptical; vein 3-SR of fore wing about twice as long as vein 2-SR; ovipositor sheath in lateral view about 1.5 times as long as first metasomal tergite and in dorsal view about as long as second and third tergites combined; 4 apical segments of antenna of ♀ white; Papua New Guinea ..... ***O. marianus*** **Fischer, 1990**

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